

## **WHAT IS CLAIMED IS:**

1. A cartilage plug for insertion into a void in cartilaginous tissue in a living mammal, comprising a laminated preformed mass of artificial biocompatible materials wherein said biocompatible materials are arranged in layers, each material having different mechanical and physical properties.
2. The cartilage plug of claim 1, wherein said materials have different hardnesses.
3. The cartilage plug of claim 2, wherein said plug is configured so as to be received in said void such that a first end becomes aligned with the surface of surrounding cartilaginous tissue, wherein said first end is formed of the least hard of said materials.
4. The cartilage plug of claim 2, wherein said void extends to subchondral bone and wherein said plug is configured so as to be received in such void such that a second end of said plug contacts said bone, wherein said second end is formed of the hardest of said materials.
5. The cartilage plug of claim 4, wherein said plug is configured so as to be received in said void such that a first end becomes aligned with the surface of surrounding cartilaginous tissue, where said first end is formed of the least hard of said materials.
6. The cartilage plug of claim 5, wherein a third layer of material is interposed between said layers forming said first and said second end, wherein said third layer is formed of material of intermediate hardness.
7. The cartilage plug of claim 1, wherein said plug has an exterior surface with ridges formed therein.

8. The cartilage plug of claim 1, wherein said plug has a bore formed therein.
9. The cartilage plug of claim 8, wherein said bore has ridges formed on its internal surface.
10. The cartilage plug of claim 1, wherein said plug has porous surfaces.
11. The cartilage plug of claim 10, wherein the exposed surfaces of each of said layers has a different porosity.
12. A cartilage plug for insertion into a void in cartilaginous tissue in a living being, comprising a preformed mass of an artificial biocompatible material having a three-dimensional shape adapted for insertion into said void so as to at least partially fill said void, said preformed mass having a plurality of ridges formed about its periphery.
13. The cartilage plug of claim 12, wherein said ridges are arranged in a parallel orientation relative to one another and wherein such ridges each define a plane that is substantially perpendicular to a central axis extending through said plug.
14. The cartilage plug of claim 12, wherein said ridges comprise a continuous helix that spirals about a central axis extending through said plug.
15. The cartilage plug of claim 12, wherein said ridges are discontinuous and are situated at discrete portions of said plug.
16. The cartilage plug of claim 12, wherein said mass has a cylindrical shape.
17. The cartilage plug of claim 12, wherein said mass has a polyhedral shape.

18. The cartilage plug of claim 12, wherein the cross-section of the distal end of said mass differs from the cross-section of the proximal end of said mass.

19. The cartilage plug of claim 15, wherein said mass has a frusto-conical shape.

20. The cartilage plug of claim 12, wherein each such ridge has a barb shaped cross-section.

21. The cartilage plug of claim 12, wherein each such ridge has a rib shaped cross-section.

22. The cartilage plug of claim 12, wherein said plug has a bore formed therein.

23. The cartilage plug of claim 22, wherein bore has ridges formed on its interior surface.

24. The cartilage plug of claim 12, wherein said plug is formed of laminated materials, said materials having different hardnesses.

25. The cartilage plug of claim 12, wherein said plug has porous surfaces.

26. A cartilage plug for insertion into a void in cartilaginous tissue in a living mammal, comprising a preformed mass of an artificial biocompatible material having a three-dimensional shape adapted for at least partially filling such void, wherein said mass has an axial bore formed therein.

27. The cartilage plug of claim 26, wherein said bore extends along the entire axis of said plug.

28. The cartilage plug of claim 26, wherein said bore extends into but not entirely through said plug.

29. The cartilage plug of claim 26, wherein said bore has ridges formed on its interior surface.

30. The cartilage plug of claim 29, wherein said ridges are barb shaped.

31. The cartilage plug of claim 29, wherein said plug has ridges formed on its exterior surface.

32. The cartilage plug of claim 26, wherein said plug is formed of laminated layers of materials having different hardnesses.

33. The cartilage plug of claim 32, wherein said plug is configured to be embedded in subchondral bone at one end and wherein said end is formed of a layer of the hardest of said materials.

34. The cartilage plug of claim 26, wherein the surfaces of said plug are porous.

35. A cartilage plug for anchoring a flowable polymer to subchondral bone, comprising a preformed mass of an artificial biocompatible material having a three dimensional shape adapted for insertion into a bore formed in said subchondral bone, said shape having ridges formed in its exterior surfaces and having a bore formed therein, said bore being configured for receiving said flowable polymer therein and further having ridges formed in its interior surface:

36. The cartilage plug of claim 35, wherein said ridges are barb-like in cross section and oriented so as to resist pull out of the plug from a said bore in said subchondral bone and to resist pull out of polymer from within said bore in said plug.

37. The cartilage plug of claim 35, wherein said plug is formed of a lamination of materials with different hardnesses.

38. The cartilage plug of claim 37, wherein material to be in contact with said subchondral bone is harder than material to be in contact with said polymer.

39. The cartilage plug of claim 35, wherein said plug surfaces have a preselected pore structure formed therein.

40. The cartilage plug of claim 39, wherein pore size of said pore structure is larger for those surfaces to be contacted by said polymer than those surfaces to be in contact with said subchondral bone.